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# ALBERTA BIRD ATLAS NEWSLETTER

*A Project of the Federation of Alberta Naturalists*

Vol. 2, No. 3 | Editor: H. Loney Dickson | Executive Director: Jack Clements | Winter, 1988

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## REMINDER

Please send your 1988 field record form to your Regional Coordinator or to Project Headquarters, if you haven't already done so. We really want to have all the '88 field records so the cards can be checked for errors and omissions prior to sending them to the computer. ❐

*—Jack Clements*

## LOOKING AHEAD — 1989

Getting excited about the 1989 breeding season? Planning your birding trips around Alberta; your vacation; your work away from home; square-bashing with your friends or club? Here are some events and dates to keep in mind.

| | |
|---|---|
| **Mid-Winter** | -The breeding season starts for the owls |
| | -Application forms from the James L. Baillie Memorial Fund for Atlas Travel Grants will be available |
| **April 13 - 16** | -National Wildlife Week |
| **June 4 - 10** | -Canadian Environment Week |
| **June 24** | -Alberta Bird Atlas Day |
| **June - July** | -Take a remote-area trip |
| **August 31** | -Send your field cards to your Regional Coordinator ❐ |

## NEW ATLASSERS

**Welcome**– new Atlassers are joining the flock at the rate of two to six per week even at the time of writing. It seems that our mailing list is in a constant state of flux. If you want to have a copy of previous issues of the newsletter, just drop me a note at project headquarters: there are a few copies still available.

**Wanted**– volunteer Atlassers. Our target is to recruit 2,000 Atlassers for the Alberta Bird Atlas Project over the five-year life of the project.

If each reader and volunteer Atlasser were to recruit just one more Atlasser we would exceed the target. Please talk to your friends about the Project and nurture their interest and skills in birding and atlassing.

Your friends may be interested to note that any breeding evidence collected during 1987 and 1988 and stowed away in their notebooks will be welcomed for the Atlas Project. ❐

## REMOTE AREA PROGRAM

Alberta posseses large remote areas which require special effort to gain access to them. These areas contain some of the best bird habitat and bird population concentrations in the province.

As it is highly unlikely we will get the birds to come to the bird Atlassers to be be counted, we have to make arrangements to get birders into these isolated sections of the province to survey squares.

The remote areas program is designed to help get Atlassers into remote areas to survey squares. You will be hearing more about the program from your regional coordinators (R.C.). They have a questionnaire which will determine your interest in birding expeditions into remote areas.

Look for more information about the program from the RC in your area this winter and in the article about the James L. Baillie Memorial Fund found in this newsletter. ❐

*—Bob Gerlock*

## COMPUTER PROGRAM

An operational model of the data input, storage and report writing software for the Alberta Bird Atlas Project was prepared at Alberta Forestry Lands and Wildlife (AFL&W) and was available early in the fall. Some test data were analysed and then modifications were made to the software. The 1987 data are with AFL&W for a complete run of 1987 breeding records. I am just about as anxious as you are to see the computer print-outs! ❐

*—Jack Clements with input from Bruce McGillivray*

## CLEARWATER RIVER BIRDING EXPEDITION

With a loud roar of our little float plane's engine we were off! It was June 21 and after months of planning and last minute setbacks we were

SHOUT
SHARE
IT

actually leaving Fort McMurray. We flew up the Clearwater River to the bottom of Whitemud Falls near the Saskatchewan border. There we set up camp for five days and inventoried birds in the Whitemud Falls Ecological Reserve and in the 10 km UTM grid surrounding it. From there we canoed about 115 kilometres back down the Clearwater River to Fort McMurray, inventorying and picking up casual bird observations as we went.

Peter Lee and Lorna Allen, from the Natural Areas Program from Alberta Forestry, Lands and Wildlife, helped organize the trip, along with personnel from the Alberta Bird Atlas project. The Alberta Forestry Service AFS) also supplied logistical support.

Ellen Johnson and Charlie Adolewski flew from Massachusetts. Sue Draxler flew from New Jersey and Paul Reeberg drove from California. Richard Klauke, Atlas Coordinator from the St. Paul area also joined the expedition.

The Honourable Don Sparrow Minister of Tourism, served lunch at the Legislature to send us off. To welcome us back, when we returned to Fort McMurray, we were met by Mayor Chuck Knight, Gordon Armitage, AFS, Don McGladdery, Ducks Unlimited, Brad Arner, Regional Coordinator of the Alberta Bird Atlas and Mary Weber-Blatz, Constituency Office for Hon. Norm Weiss.

The inventory itself was lots of fun. The country was very beautiful with bedrock stacks rising out of nowhere, and open jack pine-lichen stands intermixed with aspen or mature white spruce stands or open meadows. All of this was contained within the steep valley walls surrounding the river.

Ellen and I were able to see a beautiful black bear sow that was actually all red except on top where her fur was bleached blond by the sun. One day I saw an otter a few feet away checking me out; we also saw moose, fox, weasels, and white-tailed deer. Another sow bear was found with her two cubs sunning themselves on the top limbs of a big old jack pine.

As to birds, we felt keenly disappointed in numbers and species. In the falls area the only duckling we found was a common merganser in the belly of our pike dinner. Indeed, as fish abundance went down, as we got closer to Fort McMurray, brood sizes and numbers went up. We felt that this was directly related to the *slough sharks*. Five hooded mergansers were spotted, a special bird for the area. An example of the low bird densities was in a good-sized aspen woods that had only one least flycatcher singing sporadically when we went through it. On the other hand we saw good numbers and clutches of ruffed and spruce grouse and spectacular common nighthawk displays. Common merganser and goldeneye, mallard, belted kingfisher and spotted sandpiper were common on the river, as were northern waterthrush, cedar waxwing, common raven, magnolia and Tennessee warblers, and bank, barn, and tree swallows. Yellow warblers were one of the rarer warbler species. While we saw bald eagles frequently, a real surprise was an immature golden eagle that Richard spotted.

All in all, an enjoyable trip that yielded 99 bird species and lots of information both to the Atlas and to Natural Areas. ❐

*—Chel Macdonald*

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## REGIONAL NEWS FOR ATLASSERS

Annual Atlasser workshops are coming up in your region sometime this winter or spring. Regional Coordinators will be contacting you as to the dates and locations of meetings in your region. *Below is an up-to-date list of all Regional Coordinators:*

**1. Lethbridge Region**
***Bill Sharp***
Biology Department
University of Lethbridge
Lethbridge, Alberta
T1K 3M4
Phone: 329-2321

**2. Medicine Hat Region**
***Bob Gardner***
548-11 Street SE
Medicine Hat, Alberta
T1A 1T3
Phone: 529-6225

**3. Calgary Region**
***Rob Storms***
Apt. 905, 815-14th Avenue SW
Calgary, Alberta
T2R 0N5
Phone: 228-4154

**4. Sylvan Lake-Stettler Region**
***Myrna Pearman***
Box 127
Sylvan Lake, Alberta
T0M 1Z0
Phone: 346-2211

***Lloyd Lohr***
Box 1414
Stettler, Alberta
T0C 2L0
Phone: 742-2944 or 742-3846

**5. Vermilion-Wainwright Region**
***Iris Davies***
Box 93
Dewberry, Alberta
T0B 1G0
Phone: 847-2677

**6. Jasper-Edson Region**
***Kevin Van Tighem***
Box 2537
Jasper, Alberta
T0E 1E0
Phone: 852-5153

**7. Edmonton Region**
***Terry Thormin***
306, 10630 - 122 Street
Edmonton, Alberta
T5N 1M8
Phone: 482-1389

**8. St. Paul-Cold Lake Region**
***Richard Klauke***
Box 1142
St. Paul, Alberta
T0A 3A0
Phone: 645-5447

**9. Grande Prairie-Peace River Region**
***Peter Kennedy***
#105, 8502 - 112 Street
Grande Prairie, Alberta
T8V 5X4
Phone: 532-0227

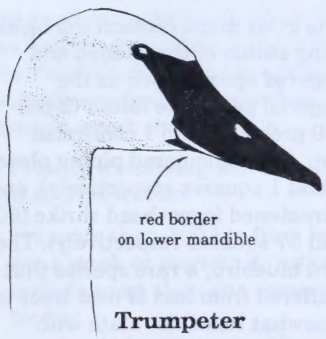
**10. Fort McMurray Region**
***Brad Arner***
241 Gladstone Bay
Ft. McMurray, Alberta
T9K 1S3
Phone: 791-1696

# SWAN IDENTIFICATION

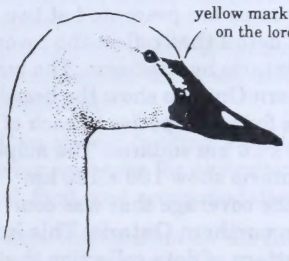
## Trumpeter or Tundra (Whistler)?

As trumpeter swans often mix with flocks of the relatively common tundra (whistling) swans throughout their migration and winter range, distinguishing trumpeters from tundras is not easy, but it is possible by paying close attention to a few distinctive characteristics.*The best ways to spot differences between the two species are:*

## Head Profiles




**Trumpeter**




**Tundra (Whistling)**

## Bill Color

***Tundra*** swans have a black bill, usually with a yellow spot of varying size in front of the eye. This spot may be absent on some tundras.

***Trumpeter*** swans have a black bill with a red border on the lower mandible. The red border may be present on some tundras.

## Head and Bill Shape

The ***Tundra*** swan bill is more dish-shaped in profile and smaller in proportion to the head compared to the trumpeter. The head is smoothly rounded and the eye usually distinct from the bill.

The ***Trumpeter*** swan bill is heavy in proportion to the head and has a straight profile. The angular head shape somewhat resembles the canvasback duck. The eye is not distinct from the bill.

The shape of the head profile may vary between individual birds. Tundra swans, especially, have a wide range of head-bill shapes, some having very obvious concave bills, while others appear straighter. Look carefully at the eye area for any yellow on the lore and to see if the eye is distinct from the bill as in the tundra swan.

## Head and Neck Movement

***Trumpeter*** swans frequently bob their head and necks up and down (head bobbing). With this motion they also have a variety of vocalizations. This combined activity apparently serves as a form of communication between individuals and within the group. Head bobbing and vocalization activity increase when the birds are disturbed and reaches maximum intensity just prior to the birds taking flight. This behavior may be brief or absent if the birds are suddenly startled and take flight.

***Tundra*** swans do not bob their head and neck in this manner. Occasionally tundras will nod only their head up and down. There is no defined pre-flight display as in the trumpeter.

## Voice

An absolute method of species identification.

***Tundra*** – high pitched, often quavering OO-OO-OO accentuated in the middle; or WHO, WHO-HO; WOO-OO-WOO; or WHO-WHO.

***Trumpeter*** – resonant, sonorous, loud, low pitched, bugle-like call.

Trumpeters, afloat or ashore, resting or in a mild state of alertness, generally have the neck kinked back at the base so that it appears to rise from the forepart of the back forming an angular C-shape (swimming swan) rather than from the very front of the body as in tundra swans. When in a state of alertness, trumpeters hold their bodies at an angle as compared to tundras which are held horizontal (standing swan). In general, body postures of trumpeters are angular and tundra postures are curved or round.

## Proportions of the Neck to Body Length

***Trumpeters*** have longer necks in proportion to their body lengths than do ***Tundras***. There is no standard ratio formula but this is a noticeable characteristic when the birds are either standing or swimming. It is not reliable in flight.

## Juvenile Identification

Both juvenile swans have a gray body coloration. Their bills are black at the tip and base, with pink in the middle. From late December on, juvenile trumpeters are usually much darker and duller gray than juvenile tundras. The bill color late in the season gradually fades to black in both species.

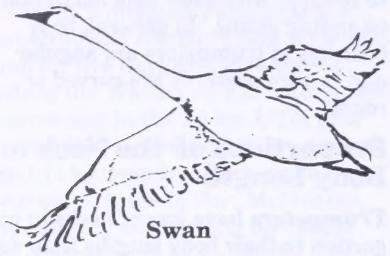
## Flight Profiles and Takeoff Behavior

***Trumpeter*** swans, following the takeoff run and just as they become airborne, will pull their necks into a shallow "S" curve. This is seen only for a very brief time during their first wing beats to stay airborne.

***Tundra*** swans hold their necks straight the entire time of the takeoff run and initial flight. This characteristic applies to both land and water takeoffs.

Trumpeter swans, may be the last birds in a mixed flock to take off. They may stay as long as one or more minutes longer than the tundra swans. This happens when trumpeter and tundra swans occur together but are not entirely intermingled (trumpeters remain at one end of the flock as a group). This behavior is usually seen in smaller mixed flocks of less than 200 swans. This is a subtle characteristic for separating trumpeters from tundras and must be used in conjunction with other identification methods.

## Flight Profiles



Swan

Snow Goose

Note the differences in size and color between swans and snow geese. Swans are large all-white (adult) or gray (juvenile) birds with a wing span of 6 to 8 feet. Snow geese of all ages have black wing tips and a wing span of about 3 feet.

*—Adapted from a brochure by the Canadian Wildlife Service*

## BOOK REVIEW

*Atlas of the Breeding Birds of Ontario*, Michael D. Cadman, Paul F. J. Eagles, and Fred M. Helleiner. 1987. Federation of Ontario Naturalists and Long Point Bird Observatory. University of Waterloo Press, Ontario. 617 pp. Publishers price $53.50.

From the start of the Alberta Bird Atlas we have used the Ontario Bird Atlas to get ideas. We have benefited from the Ontario data sheets, manuals, computer work, and organizational structure. Ontario has done a masterful job of publishing their results which can provide a model for us in 1992 when the *Atlas of the Breeding Birds of Alberta* will be in production.

Over 1350 people participated as Atlassers and many more assisted in the five-year Ontario project. The time spent atlassing and traveling to collect the basic data was 180,000 hours– a great volunteer effort. Breeding evidence was found for 292 species and two hybrids.

In the forward, Dr. J. Bruce Falls of the Ontario Atlas Management Committee writes "My dictionary describes an atlas as a book of maps, but that definition does not do justice to this volume." I agree. Literally, the maps are less than half of this volume.

The frontal material in this book describes the biogeography of Ontario, how the survey was conducted, the final coverage,how to use the book and an overview of the results. The bulk of the book, a total of 531 pages, was written by a wide variety of authors, and presents information for each species that has been recorded as breeding in Ontario.

Each species account consists of a line drawing of the species and text on one page, and two maps with a bar graph of abundance on the facing page. This format, with species in 1983 American Ornithological Union order, makes the book easy to use. The text describes the distribution and abundance for each species. Each author uses details of the atlas records which are not presented in the maps and therefore makes the text a very useful addition to the maps. While scanning a few species accounts I found few discrepancies; but for example "In southwestern Ontario, the American Bittern is primarily restricted to the large shoreline marshes, including...", yet the map shows that only 31% of the 143 squares where bitterns were reported in southwestern Ontario are on the shores of the Great Lakes and many of those are not at large marshes.

For me the maps are the most exciting part of this book. Numerous questions are posed by the distribution of birds as shown on these maps. In northern Ontario "the rich coastal marshes evidently provide highly suitable breeding habitat" for American bittern yet they appear to be absent along most of the rivers that flow into Hudson and James bays– why? The horned lark has a disjunct distribution, breeding abundantly in southern Ontario and along the lowlands of Hudson and James bays. Does the ecology of these two lark populations differ– and if so, how?

Other examples are provided by gray jay, common raven and boreal chickadee which have similar ranges extending south to Lake Simcoe which is at the southern edge of the Canadian Shield. Their ranges overlap the similar species, blue jay, common crow and black-capped chickadee throughout central Ontario. How does the ecology of these *pairs* of species differ in the zones of overlap compared with where they occur alone? The distribution of some species can be interpreted in light of the biophysical regions of the province; but there are obviously other factors which affect bird distribution that will make for fruitful future studies.

The atlas maps confirm the bleak breeding status of threatened and endangered species such as the endangered peregrine falcon (2 possible, 0 probable, and 1 confirmed square), the endangered piping plover (0, 1, and 1 squares respectively), and the threatened loggerhead shrike (60, 28, and 57 squares respectively). The eastern bluebird, a rare species that has suffered from loss of nest trees is in somewhat healthier state with breeding in 155, 139 and 408 squares respectively.

The maps are presented at two levels of detail that reflect the coverage of Ontario by Atlassers. The maps of southern Ontario show the breeding evidence for each species in each of 1824-10 x 10 km squares. The maps of all of Ontario show 100 x 100 km blocks, the coverage that was completed in northern Ontario. This is the same pattern of data collection that we have adopted in the Alberta atlas. The smaller squares are preferable over the larger blocks as shown by many species that are not abundant. For example the loggerhead shrike and Eastern Bluebird appear to have continuous ranges across most of southern Ontario when shown by 100 km blocks, yet the maps of 10 km squares indicate that breeding evidence was found in only 8% and 38% of the squares, respectively.

Curiously the area with the most number of breeding species per square is not southwestern Ontario, the so called Carolinean Canada, but rather a band north of lakes Erie and Ontario from London to Kingston. In Alberta, we can predict that the aspen parkland with its great variety of habitats

will have the highest number of breeding species, rather than the warmer southern part of the province.

While we are now two years into our atlas project, we can admire the Ontario Atlas and plan to reach its high standard. ❐

*—Geoffrey L. Holroyd, Canadian Wildlife Service*

## THE JAMES L. BAILLIE MEMORIAL FUND

The James L. Baillie Memorial Fund is offering grants to support bird atlas field work in Canada in 1989. Atlas Field Work Grants are intended to subsidize volunteers' travel expenses on a cost shared basis.

Priority in funding will usually be given to trips which:

- are more than 200 km from home;
- are a week or more in duration;
- include more than one competent birder;
- are devoted entirely to atlassing;
- atlas the largest number of squares or blocks not previously atlassed; and
- promise the greatest return in atlas data for the grant money expended.

Cost shared funding includes covering expenses for equipment, travel, food, and accommodation.

More information on the fund and obtaining application forms will be available early in the new year from your Regional Coordinator.

A deadline for completed applications has been set for March 1, 1989. ❐

*—Bob Gerlock*

## OWL PROGRAM

How many species of owl can you identify? By sight? By the sound of the call at night?

Interested in taking part in the owl program? If so, ask your Regional Coordinator for a cassette of taped owl calls and responses and an accompanying set of instructions for playing the tape (cassette) at night.

As part of the Alberta Bird Atlas Project we are providing a specific field program for Atlassers in order to focus attention and effort upon nocturnal species of owl. Without such a program, information on the breeding evidence, abundance and geographical distribution of the nocturnal owls would be widely unobtainable for the ABA data base.

The Alberta Bird Atlas Project purchased the master tape from the Library of Natural Sounds, Cornell Laboratory of Ornithology at Ithaca, New York. Eleven recorded nocturnal species of owl are on the master tape and cassettes. The cassettes are being duplicated through project headquarters with the approval of the Library of Natural Sounds, Cornell Laboratory of Ornithology for use by the Regional Coordinators and by Atlassers in the Alberta Bird Atlas Project.

Perhaps you could arrange some off-highway trips with your local snowmobile club or cross-country ski club to play the cassettes and record the responses in out-of-the-usual places. Dress warmly and have fun.

The University of Alberta Department of Forest Science is sponsoring another *owl activity* called Owl Prowl. Owl Prowl is a project designed to get information about owls throughout the year. If interested contact Jim or Barb Beck at the Department of Forest Science or phone 435-2065 (day or evening).

*A note of caution:* do not harass the birds and keep any repeat visits to the same location to a minimum. ❐

*—Jack Clements*

## WANTED...VOLUNTEER QUIZ MASTER

We are looking for a volunteer to develop and run a quiz appropriate for each issue of the newsletter. The quiz would be about birds that breed in Alberta, and could be based on mystery distribution maps, clues about nesting habits or any behaviour associated with the breeding codes used for our project.

If you are interested please contact the Executive Director at project headquarters in the Provincial Museum of Alberta. Phone 427-1730. ❐

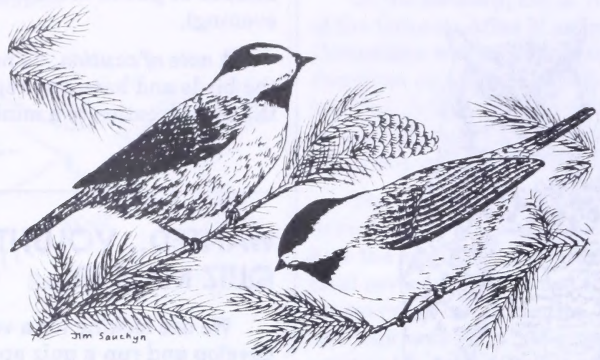
*—Jack Clements*

## ALBERTA BIRD ATLAS COPYRIGHT REPORT

The Federation of Alberta Naturalists (FAN) has appointed Martin Kratz, a copyright and patent lawyer with offices in Edmonton and Calgary, to take the necessary steps to ensure the Federation of Alberta Naturalists ownership is secured and interests are protected in both the Alberta Bird Atlas and the data base underlying the Atlas.

FAN is developing its policy on access to the data being assembled for it by Atlassers throughout Alberta. The Executive Director of the Alberta Bird Atlas project encourages Atlassers, or other interested persons, to submit suggestions for the Federation's policy on access to this data.

From time to time, as the Alberta Bird Atlas and the data base reach significant legal milestones, Mr. Kratz will provide an updated report for the Alberta Bird Atlas Newsletter. Any readers wishing more information about any of these matters can contact the Executive Director at 427-1730 in Edmonton. ❐ *—Martin Kratz*




## WATCHING BIRD FEEDERS HELPS SCIENCE

U.S.: Ithaca, New York, 2 November 1988
Canada: Port Rowan, Ontario, 2 November 1988

*(Taken from: Press Release: Cornell Laboratory of Ornithology)*

Watching the birds at your feeder on a wintery Saturday morning while drinking coffee and reading the paper doesn't sound like science. Yet thousands of participants in Project FeederWatch, a continent wide bird feeder survey, are proving that even their armchair observations can answer some important questions about the abundances and distributions of birds at feeders.

Feeder owners ask such questions as: Why aren't there many evening grosbeaks this winter; What can I do to discourage starlings: Why does my neighbour get all the nuthatches while I have none? By simply counting the numbers and kinds of birds at their feeders, FeederWatch observers across North America gather data that are helping to provide answers to these and similar questions. At the same time, the information helps scientists to monitor changes in winter bird distributions and to study the effects of weather and habitat on the number of customers at bird feeders. "Project FeederWatch was started in 1987 by the Cornell Laboratory of Ornithology," explains Dr. Erica Dunn, project coordinator. "The results from the first year are already providing us with insights about birds at feeders. We can track winter bird populations across the continent– last winter most of the 4,000 Project FeederWatch participants noted unusually high numbers of pine siskins, a small finch. High numbers of siskins were not localized events, but occurred from Alaska to Florida. Further analysis should enable us to follow the siskins' travels during the winter of 1987."

Anyone who is able to identify the birds at their feeders is welcome to join Project FeederWatch. Counts are made on one or two days every two weeks from November until April, and then recorded on special computer-readable forms: FeederWatchers pay $9.00 annually to support the project, and in return receive two issues of *FeederWatch News*, featuring up-to-date results of the survey and interesting notes on bird feeding and the species that frequent feeders.

To enroll, send your name, address, and $9.00 to: Project FeederWatch, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ontario, N0E 1M0. Turn those observations you are making for your own enjoyment into a contribution to science!

## WONDERFUL WOODPECKERS

*(Adapted from the Delaware B.B.A. newsletter)*

*(Taken from the Maritimes Breeding Bird Atlas, Volume 9, Spring 1987).*

Woodpecker nesting behaviour is fairly similar among the various species. Exact details concerning postures and calls vary from species to species, but the following should enable you to interpret what is happening with any particular pair of birds. A series of visual observations over a period of a few weeks is necessary to establish the stage of the nesting cycle.

**Drumming** is a relatively loud rhythmic series of sounds produced when the bird's bill strikes a resonating object such as a hollow log or branch. Drumming occurs at a specific site or sites, called signal posts, which have been selected for their resonating qualities. This activity is part of establishing and defending a territory, or pairing.

Pecking sounds which usually are not loud, rhythmic or in a definite series are considered as **tapping**. Tapping has four known functions and must be evaluated in the context in which it occurs:

i) **Food tapping** is often performed in a series as the bird moves about seeking food. After a short observation period, it should be apparent that the bird is foraging.

ii) **Nest-site selection and hole-boring.** In its search for a nest-site, the bird moves about tapping lightly here and there. Eventually, the bird returns to one certain spot which will be the nest-site. In hole-boring, the rhythm is even and emphatic. The speed is related to the consistency of the tree and the intensity of the bird's drive.

iii) **Displacement tapping** is derived from food-tapping, but is usually a response to stress. If a hungry bird approaches a crowded feeding station but cannot gain access to the food, it will release its tension by tapping at the nearest spot with stereotyped movements, usually accompanied by a raised crest or nape feathers. The tapping is very similar in sound and rhythm to food-tapping, but occurs under different circumstances.

iv) **Ritual tapping** occurs almost exclusively in relation to the nest excavation period. Ritual tapping occurs near, at, or inside the nest cavity. This tapping is done without the apparent intent to excavate a hole, except in cases of extreme stress or excitement.

**Pair formation** in unmated resident woodpeckers takes place over a long period of time, often beginning in late winter. Resident woodpeckers who mated with one another one year are likely to have adjacent ranges and to pair with last year's mate. Migrant individuals take somewhat less time, because they return to the same area each year and are likely to have the same mate from year to year. Drumming is the first indication that a bird is on territory and that pair formation has begun. Drumming may occur between mates or neighbours causing, in the case of mates, one mate to approach the area of the other. When prospective mates first meet, a number of behaviours may be observed. These displays vary with the species, but may include head movements, wing displays, special flights, frozen poses and special calls.

An important interaction is the triangle encounter, involving a mated pair and an outsider. The outsider and the paired bird of the same sex engage in a series of displays and flights. The other pair member does not participate but remains nearby. This interaction may last an hour or more and be repeated over several days. In most cases the intruder loses the conflict and is forced to leave.

After pair formation has taken place **nest-site selection** begins. Both sexes search for a site and either may make the final choice. Both birds work on excavation.

**Excavation** can functionally be divided into three distinct stages. In the early, or "corridor forming" stage, the bird perches at the entrance and only the head and shoulders enter the cavity. When linking the corridor to the main cavity, the bird may enter the excavation completely, but must back out to dispose of chips. In the late, or "nest chamber" stage, the bird commonly enters, turns around inside and exists head first to dispose of chips from the hole.

Most species make a new cavity each year. Flickers will often re-use a cavity while pileated woodpeckers only occasionally do so. If a bird does re-use a cavity, it will spend time renovating, an activity comparable to excavating a new hole. The renovation/excavation ritual is apparently necessary to establish and maintain the pair bond and to assure a successful nesting attempt. Woodpeckers may excavate or begin to excavate multiple cavities before selecting one for the nest-site. Because competition for cavities is intense, a pair may lose one or more excavations to avian or mammalian usurpers. Once a nest cavity is complete there are few days of non-activity around the nest. Some birds will continue to excavate up to about 15 days after the young hatch, which may be part of nest sanitation.

**Copulation** may occur from several weeks before egg-laying to shortly after the last egg is laid, but it occurs most frequently during the egg laying period. Copulation usually takes place on a limb in or near the nest tree, and lasts 15 to 20 seconds. Sometimes tapping or reverse mounting (female mounts male) precedes copulations. Reverse mounting may also occur after the young have fledged and therefore does not necessarily indicate an early stage of the nesting cycle.

Clutch size (number of eggs laid) varies from two to five in hairy woodpeckers and five to ten in northern flickers. Typically one egg is laid each day in the morning until the clutch is complete. During the egg-laying period, before incubation begins, one bird is frequently at the nest but usually outside the cavity or perched in the entrance. At this stage both birds may be gone for an hour or more and some perfunctory excavation may take place.

The constant presence of an adult in the cavity marks the **incubation** and brooding stages. The male incubates or broods at night while the female roosts in a cavity elsewhere in the territory. During the day, the parents alternate. If a bird is seen perched for a long period of time outside the cavity or perched in the cavity entrance when the weather is cool, incubation has probably not begun. In bad weather woodpeckers shelter in a cavity entrance, so this behaviour may not indicate a nest. After incubation has begun "sitting in the entrance" behaviour may be observed on warm days, and one might observe the bird panting. Caution is required late in the day as woodpeckers go to roost well before dark. A bird perched in a cavity entrance at this time may not be at a nest.

Woodpeckers are usually at the nest more during incubation than after **hatching**. As one might expect the attentive periods are longer in wet or cold weather or during the cooler part of the day. During incubation the birds will not flush readily from the nest, whereas after hatching they will. If a bird is flushed in the first four to six days after the eggs have hatched it will return fairly soon.

Since incubation may begin a day or two before the clutch is complete, hatching may take place over two to three days. The parents feed the young soon after they hatch, thus an adult carrying food or a faecal sac indicates that at least one egg has hatched. Egg shell removal may indicate the presence of young or may be the removal of a damaged egg. For the first four to six post-hatching days in downy and hairy woodpeckers, one parent is nearly always at the nest. These species carry food in the bill to feed the young, but the food items may be so small that they are virtually unobservable. Flickers and pileated woodpeckers feed by regurgitation and thus it is more difficult to determine when the young have hatched.

During the first few days some of

the adults of all species will consume the faecal sacs, then carry them away from the nest for disposal after this initial period. In the species that feed by regurgitation, and for the first few days in the others,look for a wet glistening bill on an adult emerging from the nest. Often the adult will perch momentarily at the entrance and will have peculiar throat movements that give one the impression that the bird is having difficulty swallowing or is rapidly extending and withdrawing its tongue. This has been noted for all our woodpecker species. The initial feeding rate may be slow but it increases rapidly as the eggs hatch. The number and frequency of the feeding trips varies with the species, time of day and weather conditions.

At hatching the young are naked except for tiny quills where the flight feathers will appear. The young of most species give a rhythmic beeping sound audible at one to two meters. A change in light intensity will elicit a raspy begging response, which, at three to five days after the young hatch, can be heard from the base of the tree. If you suspect nest, pass an object over the entrance. The young birds will respond by begging loudly until they are 12 to 15 days old, after which they will respond by huddling in the bottom of the nest. Young become active in the nest three to seven days before fledgling and may appear at the nest entrance during this time.

For the first four to six days after hatching occurs, the adults completely enter the cavity to feed the chicks; after feeding the adult will brood the young or wait for its mate to return. At this time it leaves the nest head first. After the sixth day, the adult usually does not wait for its mate to return. By day 10 to 12, the adult will enter the cavity almost completely, feed the chicks and come out tail first. By day 15 to 18, the adult feeds the young by inserting its head and neck into the nest cavity, entering on occasion to remove the faecal sacs.

This may be more information than you need to confirm woodpecker breeding in your square, but it should give you some insight into any woodpecker behaviour you encounter. It's such fascinating stuff that I can hardly wait to snoop around in my square in the hopes of spying some telltale signs that the woodpeckers are breeding.

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## SPECIAL THANKS...

**PITNEY BOWES OF CANADA LTD.**

Pitney Bowes of Canada Ltd. loaned us a folding machine and a postage meter to prepare the Summer Issue of the newsletter for mailing. Pitney Bowes also donated a meter and plate with the words "ALBERTA BIRD ATLAS". Special thanks.

**TRIMAC**

Trimac "...is pleased to make a donation to the Federation of Alberta Naturalists" for the Alberta Bird Atlas Project. Trimac's contribution was made on behalf of all of its operating companies. Special thanks.

**FORDING COAL LIMITED**

Fording Coal Limited is "...pleased to respond with...our corporate donation to the Federation of Alberta Naturalists' Alberta Bird Atlas Project," and adds "Best of luck with your campaign and I look forward to talking with you again in the near future." Special thanks.

**INTERPROVINCIAL PIPE LINE COMPANY**

With every good wish, Interprovincial Pipe Line Company is pleased to send a contribution to the Federation of Alberta Naturalists Bird Atlas. Special thanks.

**TRAVEL ALBERTA**

Travel Alberta donated the Alberta Bird Atlas Project volunteer pins for distribution to all volunteers. The design is based upon the Project logo. Special thanks.

**CANADIAN NATIONAL SPORTSMEN'S SHOWS**

**WORLD WILDLIFE FUND**

Canadian National Sportsmen's Shows and World Wildlife Fund jointly selected the Alberta Bird Atlas Project as a *Partners in Conservation* project. The two organizations joined forces in a unique conservation partnership known as *Partners in Conservation*, and by merging their conservation efforts are able to mount a dynamic and concerted effort to address the key wildlife and habitat issues in Canada. This means that 50% of the funds committed by World Wildlife Fund (announced in the Summer Issue of the newsletter) are being provided by Canadian National Sportsmen Shows. We are proud to be designated as a *Partners in Conservation* project. Special thanks.

**WELDWOOD OF CANADA LTD. HINTON DIVISION**

Weldwood of Canada Limited, Hinton Division, employs a wildlife biologist to integrate forestry/woodlands activities while keeping wildlife interests in the forefront. The Hinton Division is cooperating, through the wildlife biologist, with the Alberta Bird Atlas Project as much as possible and wishes the project the best of success.

**SYNCRUDE CANADA LTD. NORTHWARD DEVELOPMENTS LTD.**

Syncrude Canada Ltd. and Northward Developments Ltd. made a corporate donation to the Federation of Alberta Naturalists for the Alberta Bird Atlas Project, and are pleased to provide this support through the Community Relations office. Special thanks.

**ALBERTA OIL SANDS TECHNOLOGY AND RESEARCH AUTHORITY**

The Alberta Oil Sands Technology and Research Authority made a donation "to support this worthy project" and "trusts that in a small way it will assist you to reach your financing objectives." Special thanks.

**LIBRARY OF NATURAL SOUNDS, CORNELL LABORATORY OF ORNITHOLOGY**

The Library of Natural Sounds, Cornell Laboratory of Ornithology gave permission to the Alberta Bird Atlas to duplicate onto cassettes the owl recordings on a master tape purchased from the Library. Our duplicate copies are for the sole use of Atlassers participating in our owl program. Special thanks.

***ART WORK***

*Mr. Jim Sauchyn and Sandra Hutt (The Electronic Scribe) have been providing the Alberta Bird Atlas Newsletter with pen and ink drawings and computer graphics for use in various newsletter articles. Thanks to Jim and Sandra for their contribution.*

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